

# Building middle-range theories from case studies

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## HIGHLIGHTS

- Analyses and criticizes Derek Beach and Rasmus Brun Pedersen's account of theory-building process-tracing.
- Clarifies the concepts of causal mechanism and middle-range theory that are employed in case studies.
- Proposes an improved account of how middle-range theories about causal mechanisms may be built through process-tracing.

## 1. Introduction

Social scientists often consider case studies as sources of new theories (e.g. Beach & Pedersen, 2013, 2016; Becker, 2014; George & Bennett, 2005; Tavory & Timmermans, 2014). However, the procedures whereby new theories are built from case studies are not well understood. In this paper, I address the question of how process-tracing can be employed in developing new middle-range theories in the social sciences. Process-tracing is a method for analyzing sequences of events and causal mechanisms in single-case research designs. Middle-range theories, in turn, have been frequently construed as semi-general theories that aim to represent causal mechanisms.

My focus is on political scientists Derek Beach and Rasmus Brun Pedersen's (2013; 2016) recent account of theory-building process-tracing that provides a detailed discussion of how process-tracing can be used to construct new middle-range theories about causal mechanisms. While acknowledging their important contributions to the case study methods and the literature on theory-building, I indicate that their notions of middle-range theory and causal mechanism are ambiguous and problematic. My main argument is that Beach and Pedersen's account of theory-building process-tracing can be improved by clarifying and further developing the concepts of middle-range theory and causal mechanism.

In particular, I show that Beach and Pedersen tend to conflate causal mechanisms with middle-range theories (that aim to represent causal mechanisms) even though they are committed to an ontic notion of causal mechanism. As a result, they do not clarify the nature of those middle-range theories that are constructed in theory-building process-tracing. I point out that this ambiguity has its roots in their descriptions of causal mechanisms that also include other problems. They decompose causal mechanisms into two types of parts without clearly separating them. Furthermore, they problematically assume that causal mechanisms transmit causal forces and suggest that causal mechanisms

in theory-building process-tracing can be best represented in terms of singular and linear sequences of distinct temporal parts that link causes to outcomes. As a consequence, Beach and Pedersen fail to provide conceptual tools for theorizing mechanisms of social processes that include feedback loops and other types of non-linear interactions.

In the latter part of the paper, I argue that these problems and ambiguities can be avoided by understanding a causal mechanism in terms of its component entities (with properties) whose activities and interactions produce a specific type of outcome in suitable contexts. I also provide an account of middle-range theories, according to which they consist of three evolving parts that serve different epistemic functions in social research, and illustrate it by discussing the so-called democratic peace theory. Finally, I show how these notions can be employed in developing an improved approach to theory-building process-tracing.

## 2. Theory-building and middle-range theories in the social sciences

Many attempts have been made to expound general principles and methods for building new theories in the social sciences (for a review, see Swedberg, 2014). Many social scientists have assumed that case studies offer promising opportunities for theory-building (e.g. Beach & Pedersen, 2013; George & Bennett, 2005). However, no consensus has emerged about the proper methods of theory-building. Many of the traditional accounts of theory-building have faced severe critiques — the grounded theory approach is a case in point (see Timmermans & Tavory, 2012). Moreover, drawing on philosopher Hans Reichenbach's (1938) influential distinction between the context of discovery and the context of justification, some social scientists and philosophers tend to regard the methodological discussion on the normative methods for theory-building as misguided. At the same time, the distinction underlying this view has been forcefully criticized in the philosophy of

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science and methodology of the social sciences.

Even if we reject a strict separation between two contexts of research and allow that discovery processes can be rationally analyzed, it may still be wise to consider the methods of theory-building and the methods of theory-testing separately. The reason is that many methods for testing theories in the social sciences require that researchers have formulated competing theoretical hypotheses that are tested against each other by using evidence acquired independently of the processes of building the theories of which the tested hypotheses are derived from. It has also turned out to be more difficult to develop standardized procedures for theory-building than for theory-testing. For these reasons, I assume that the methods of theory-building can be analytically separated from the methods of theory-testing although I do not deny that both types of methods can be used in a single study.

The concept of middle-range theory was coined by sociologist Robert K. Merton (1948) in a paper that criticized sociologist Talcott Parsons' approach to social theory. Merton's core point was that sociologists would do better if they concentrated on developing many semi-general theories about bounded ranges of social phenomena rather than try to develop "total systems of sociological theory" whose objective is to unify and explain all social phenomena. Nevertheless, he also criticized such raw empiricism which replaces explanatory theories with isolated empirical generalizations. Though many social scientists believe that Merton's ideas on middle-range theories still form an important blueprint for connecting theory-building with empirical analysis in social research, no agreement has been reached about how this concept should be defined (e.g. George & Bennett, 2005; Hedström, 2005; Hedström & Udehn, 2009; Hedström & Ylikoski, 2010; Pawson, 2000). In the next section, I briefly revisit Merton's original views of middle-range theories and identify a tension in them. Then I indicate some differences between how this concept is used in contemporary sociology and political science respectively.

According to Merton (1968, 39) often cited characterization, middle-range theories "lie between the minor but necessary working hypotheses that evolve in abundance during day-to-day research and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behavior, social organization and social change." In addition to indicating what middle-range theories are not, Merton describes some positive features and functions of this type of theory. He writes, for example, that middle-range theories guide empirical research (Merton, 1968, 39) and generate theoretical problems for sociologists to study (Merton, 1968, 45). He further states that they allow sociologists to identify gaps in their knowledge as well as to consolidate separate hypotheses and theoretical generalizations into networks of interrelated sociological theories (Merton, 1968, 68). Still, following the hypothetico-deductive model of scientific method, Merton defines middle-range theories in static terms, writing that they "consist of limited sets of assumptions from which specific hypotheses are logically derived and confirmed by empirical investigation" (Merton, 1968, 68).

In recent discussions, middle-range theories are often re-interpreted utilizing the mechanistic approach to explanation that also has some roots in Merton's work (e.g. Hedström, 2005; Hedström & Udehn, 2009; Hedström & Ylikoski, 2010; Pawson, 2000). Drawing on these ideas, I have elsewhere proposed that, in order to do justice to different functions of middle-range theories in social research, we should reject Merton's single function and static definition of the concept of middle-range theory and decompose middle-range theories into three evolving parts that perform different epistemic functions in social research (Kaidesoja, 2018). This proposal is in line with Merton's (e.g. 1968) developmental approach to theorizing. I will later come back to this view.

Despite the common assumption that middle-range theories are theories about causal mechanisms, there are systematic differences in how this concept is used in contemporary sociology and political science. When discussing middle-range theories, analytical sociologists

emphasize the importance of specifying the micro-foundations of macro-level social phenomena in terms of the individual-level causal mechanisms that are assumed to underlie or produce these phenomena. For the purposes of studying mechanisms of this kind, they tend to apply formal methods and agent-based modeling, often inspired by (broad versions of) rational choice theory, and test their theoretical models with large-N data (e.g. Hedström, 2005; Hedström & Bearman 2009). These methodological views presuppose that causal mechanisms are relatively context-independent, in the sense that the same causal mechanism is assumed to operate in a variety of different contexts. By contrast, political scientists, especially in the fields of international relations and comparative politics, often build middle-range theories in which causal properties and activities are attributed to large-scale social formations, such as states, governments, political parties or political institutions. Many of them build and test middle-range theories by using case study designs, process-tracing and small-N comparative methods. These methodological views presuppose that causal mechanisms are relatively dependent on specific contexts. In this approach, then, middle-range theories about causal mechanisms tend to be less abstract and general than those developed by analytical sociologists (e.g. Beach & Pedersen, 2013, 2016; Checkel & Bennett, 2014; George & Bennett, 2005). Though these two approaches can be seen as complementary rather than competing, I will focus mostly on the latter understanding of middle-range theories.

### 3. Case studies, cases and process-tracing

Case studies can be understood as empirical inquiries where social scientists investigate in depth a single case, or a small number of cases, of a social phenomenon by combining many different types of data sources. This kind of definition is commonly used in discussions on process-tracing methods (e.g. Beach & Pedersen, 2013, 2016; Bennett & Checkel, 2015; George & Bennett, 2005). Case studies mostly utilize non-statistical methods (i.e. qualitative or small-N comparative methods) of data analysis even though there is no single "case study method" but rather multiple methods that can be employed in case study research designs.

A case may be understood as an instance or an example of a social phenomenon. The notion of social phenomenon encompasses types of social events, social processes, social situations, social relations, social practices, social organizations and broader social formations. Hence, what is a case depends on how social scientists conceptualize and classify social phenomena, meaning that a social phenomenon is identified by describing its key attributes and how it differs from the other, closely related phenomena. This characterization does not pose any restrictions to the size of a case: a case may be either small or big or somewhere in between in terms of geographical and temporal scales. Hence, cases studied in the social sciences range from instances of small group decision-making processes and local social movements to instances of political revolutions, wars and even civilizations. It is also possible that a theorized phenomenon has only one known instance although social scientists usually aim at identifying social phenomena that have many instances. This allows them to generalize across cases.

Process-tracing is a method that is used in a single case research design to analyze sequences of events and causal mechanisms by using heterogeneous evidence from different sources (e.g. Beach & Pedersen, 2013; Bennett & Checkel, 2015; Waldner, 2012). In case studies that employ process-tracing, the cases studied are instances of social processes. It has been also argued that process-tracing allows within-case causal inferences about the parts of a causal mechanism in a case by means of a Bayesian approach to confirmation (e.g. Beach & Pedersen, 2013; Bennett & Checkel, 2014). Nevertheless, this approach is somewhat controversial. In this paper, I assume with Beach and Pedersen (2013; 2016) that the notion of within-case causal inference makes sense, but I do not discuss their Bayesian account of confirmation.

Although many social scientists hold that process-tracing is a

promising method for developing new middle-range theories (e.g. Beach & Pedersen, 2013; Checkel & Bennett, 2015; George & Bennett, 2005), philosophers of social science have mostly focused on the issues whether and how process-tracing can be used to justify causal generalizations from case studies and cross-case causal inferences (e.g. Guala, 2010; Ruzzene, 2012; Steel, 2008). Though I do not deny the importance of these latter issues, it is essential to recognize that they do not cover all philosophical questions regarding the uses of process-tracing in social research. Unless we assume that creative processes in science are impossible to analyze rationally, we need to address the question: where do new explanatory theories come from? In this paper, I will mostly bracket the issues pertaining to the justification of causal generalizations from case studies. This allows me to concentrate on the issues that arise when process-tracing is used for building *potentially generalizable* theories of the middle-range in single case research designs.

#### 4. Beach and Pedersen on theory-building process-tracing

In methodological discussions within social sciences, process-tracing is often assumed to be a (more or less) unified method. Beach and Pedersen (2013, 3) question this assumption by contending that “[a] lot of murkiness about what process tracing is and how it should be used in practice can be cleared up by differentiating process-tracing into three variants within social sciences: theory-testing, theory-building and explaining outcome.” Since theory-building process-tracing can be specified by considering its similarities and differences with the other variants of process-tracing, I will take a brief look at all three ways of using process-tracing before I move on to discuss this particular variant in detail.<sup>1</sup>

Beach and Pedersen (2013, 2) construe all variants of process-tracing as “tools to study causal mechanisms in single-case research designs.” Since all of them include hypothetical inferences about the presence of causal mechanisms in a studied case, they can be all used to provide mechanism-based explanations of the outcomes of social processes. Despite these common features, Beach and Pedersen suggest that we should distinguish between three uses of process-tracing because there are significant differences in their epistemic aims, inferential structures, and assumptions about causal mechanisms.

*Theory-testing process-tracing* aims at empirically evaluating an already theorized causal mechanism that is hypothesized to be present in “a population of cases of a phenomenon” (Beach and Pedersen, 2013, 11). After the causal mechanism has been operationalized in a case-specific manner, theory-testing process-tracing is used to determine whether the empirical predictions, deductively derived from the theorized mechanism, are supported by the case-based empirical evidence (Beach and Pedersen, 2013, 14–15). In *theory-building process-tracing*, the case-based materials and earlier research are employed in constructing a potentially generalizable causal mechanism which is inferred to be present in the studied case if the case-based evidence supports it (Beach and Pedersen, 2013, 3, 16–18). Hence, theory-building process-tracing is said to “uncover middle-range theories formulated as a causal mechanism that works within a bounded context” (Beach and Pedersen, 2013, 61).

The limitations of these two variants of process-tracing are similar since neither of them alone can be used to generalize the theorized causal mechanism to other cases. The reasons are that the same type of outcome may have been produced by different causal mechanisms in different cases and that the same causal mechanism may produce different outcomes in different contexts if the contextual conditions are

different (Beach and Pedersen, 2013, 54; 153–154). In addition, neither of these variants allow us to infer whether the hypothesized causal mechanism is a sufficient cause of the outcome in the studied case although they enable us to make strong within-case inferences about the presence and functioning of the theorized mechanism in the studied case (Beach and Pedersen, 2013, 89–91).

Finally, *explaining-outcome process-tracing* is used to develop comprehensive explanations for puzzling outcomes in specific historical cases that are considered substantially important (Beach and Pedersen, 2013, 3, 145). These kinds of explanations typically combine many different causal mechanisms whose eclectic conglomerates are said to form “case-specific mechanisms”,<sup>2</sup> meaning that these explanations “cannot be detached from the particular case” (Beach and Pedersen, 2013, 19). Though the name of this variant is somewhat misleading, given that all variants of process-tracing can be used to provide mechanism-based explanations of outcomes in cases, the key idea here is that explaining-outcome process-tracing aims at explaining all interesting aspects of a particular historical case without attempting to develop or test generalizable theories. This sort of “case-centric” focus is said to distinguish the research designs that utilize explaining-outcome process-tracing from the “theory-centric” designs where the other two variants are employed (Beach and Pedersen, 2013, 12).

Let us now zoom in to theory-building process-tracing. According to Beach and Pedersen (2013, 16), theory-building process-tracing is “an inductive method” that “seeks to build a midrange theory describing causal mechanism that is generalizable outside the individual case to a bounded context.” They also write that “[i]n its purest form, theory-building process-tracing starts with empirical material and uses a structured analysis of this material to detect a plausible hypothetical causal mechanism whereby X [which is a type of cause] is linked with Y [which is a type of outcome]” (Beach and Pedersen, 2013, 16). In addition, theory-building process-tracing can be combined with theory-testing process-tracing and the small-N comparative methods in case study research designs (Beach and Pedersen, 2013, 61).

In their later work, Beach and Pedersen (2016, 15–16; 31; 303–304) explicitly distinguish between “within-case mechanistic evidence” and “difference-making evidence”, drawing on some discussions in the mechanistic philosophy of science (e.g. Russo & Williamson, 2007). The key idea is that mechanistic evidence produced in case studies enables us to make inferences about the presence/absence of the parts of the hypothesized causal mechanism in a single case. The production of this kind of evidence does not require that the case under study is compared to any other cases. In contrast, difference making evidence produced in randomized controlled experiments that use randomly assigned test and control groups allows us to make (counterfactual) inferences about the average effects of the changes of the values of the independent variable on the values of the dependent variable in a particular population. However, difference-making evidence alone does not enable us to infer how, or through which causal mechanism(s), particular outcomes are produced in particular cases. Hence, mechanistic evidence is the most important type of evidence for theory-building process-tracing since it concerns causal mechanisms rather than dependencies between population-level variables (Beach & Pedersen, 2016, pp. 303–304). According to Beach and Pedersen (2013, 132–143), this type of case-based and non-standardized evidence can be acquired from many complementary sources, including interviews, archives, memoirs, public speeches, newspapers and earlier historical studies. Insofar as these sources are independent from each other, mechanistic evidence from different sources can be triangulated.

In practice, theory-building process-tracing can be used in two types of research situations (Beach and Pedersen, 2013, 16, 60):

<sup>1</sup> In their recent book, Beach and Pedersen (2016, Chapter 9) distinguish a fourth variant of process-tracing method which is named as “theory-revising process-tracing”. Nevertheless, for the purposes of this paper, it is sufficient to restrict attention to three variants of process-tracings.

<sup>2</sup> In my view, we should use here the term ‘causal narrative’ instead of ‘causal mechanism’, but I will not argue for this point here because it is not important for the main arguments of the paper.

- 1) A correlation between X and Y is empirically established but the causal mechanism that might link them is not known
- 2) Y is known but X and the causal mechanism that might link X and Y are both unknown.

In both types of situations, the analyst seeks to theorize a causal mechanism by means of studying a case that she assumes to instantiate the causal mechanism. Nevertheless, there are differences in the procedures of selecting cases for study in these two situations.

Beach and Pedersen (2013, 154) argue that in the situation type 1, the analyst should select a case of the phenomenon that she considers typical, in the sense that she can assume that X and Y are both present in the case. They illustrate this type of theory-building process-tracing by discussing Irving Janis' (1982[1972]) theory of groupthink that he built by analyzing, among other cases, how the Kennedy administration in the U.S. arrived at bad decisions that led to the failed Bay of Pigs invasion in Cuba in 1961. According to Beach and Pedersen (2013, 61–63), the theory of groupthink describes a causal mechanism whereby poor decision-making in tightly-knit small groups (X) leads to bad policy decisions (Y) in situations where the members experience conformity pressure and fail to question their problematic assumptions.

In the situation type 2, the analyst is advised to select a case that is deviant, in the sense that it is surprising in the light of her background knowledge about the research domain (Beach and Pedersen, 2013, 154–156). Beach and Pedersen illustrate theory-building process-tracing in this type of situations by discussing a hypothetical case where democracy has been found in a non-developing country. They consider this case deviant because it is incompatible with the widely held theoretical expectation in political science that economic development of a country contributes to its democratization. Hence, the analyst faces here, not only the task of providing an account of the cause (X) for a democracy in a non-developing country (Y), but also the task of theorizing a causal mechanism for how X produces Y in the studied case (Beach and Pedersen, 2013, 155). It is obvious that these types of situations may emerge as byproducts of the case studies that employ theory-testing process-tracing.

Beach and Pedersen's (2013, 16–18; 60–63) account of theory-building process-tracing can be summarized by separating three steps:

- 1) Definition of the concepts of a cause X and an outcome Y, or at least the concept of an outcome Y, in terms of positive and causally relevant attributes; selection of a suitable case by employing background knowledge of the research domain; construction of an empirical narrative that describes a sequence of observable events between the instances of X and Y in the studied case.
- 2) Inference that the temporal parts in the empirical narrative are empirical manifestations of the parts of a hypothesized causal mechanism that might be present in the case; conceptualization of the causal mechanism by specifying all of its parts that are needed to link X to Y in the studied case, using the terms that refer to entities engaged in activities.
- 3) Inference from the relevant empirical evidence that the hypothesized causal mechanism as a whole is present in the case and, thereby, provides a mechanism-based explanation of the case.

Beach and Pedersen acknowledge that theory-building seldom proceeds in a straightforward manner since “steps 1 and 2 are often repeated before the step 3 is reached” (Beach and Pedersen, 2013, 18). They also suggest that the elimination of competing mechanism-based explanations is not usually necessary in the third step for two reasons. First, they allow that there may be other complementary causes and mechanisms that also contributed to the outcome of Y in the case which are not addressed in theory-building process-tracing. Second, they note that it is uncommon that researchers employing theory-centric process-tracing are able to build two or more comparable and competing mechanisms with the same number of mutually exclusive temporal parts

that are both proposed to explain all case-based facts (Beach and Pedersen, 2013, 89–90). Assessment of the sources and quality of the case-based mechanistic evidence, in turn, is used to determine how confident one can be about the third step.

Although it is a useful first attempt at codifying theory-building process-tracing, Beach and Pedersen's account contains some ambiguities and problematic assumptions that motivate the following discussion. In particular, they tend to conflate middle-range theories with causal mechanisms. This is problematic because they also accept an ontic view of causal mechanisms which implies that causal mechanisms cannot be theories. Accordingly, they fail to properly address the concept of middle-range theory (apart from the concept of causal mechanism). Since these and some other problems and lacunas in Beach and Pedersen's approach are rooted in their conception of causal mechanism, I take a closer look at it.

## 5. Beach and Pedersen on causal mechanisms

Beach and Pedersen (2013; 2016) subscribe to a mechanistic and deterministic notion of causation.<sup>3</sup> From this viewpoint, they define a causal mechanism “as a theory of a system of interlocking parts that transmits causal forces from X to Y” (Beach & Pedersen, 2013, p. 26; also 2016, 34–35). They illustrate this view by discussing, among other examples, “the capture causal mechanism” that relates to studies on democratization and its obstacles. Their description of this mechanism is based on Daniel Ziblatt's (2009) study on parliamentary elections in Imperial Germany in 1871–1912. Ziblatt's study aims to explain how local officials were captured by landed elites to perpetrate electoral fraud in parliamentary elections during this period when landownership relations were highly unequal. Beach and Pedersen (2016, 78) criticize Ziblatt for not detailing the capture causal mechanism through which electoral frauds are institutionalized. Their own hypothetical description of the capture mechanism aims to remedy this shortcoming by splitting the mechanism into two parts: (i) landed elites who seek to preserve their electoral dominance put pressure on local officials and (ii) local public officials — such as mayors, county commissioners, police officials, and election officials — exploit the powers of their office to interfere in elections in order to benefit landed elites (see Fig. 1). The outcome of this two-step mechanism is the institutionalized subversion of free and fair elections as local officials are captured by landed elites.<sup>4</sup> The contexts where this particular mechanism is expected to operate are characterized as situations where the traditional social power in rural areas, based on highly unequal landownership relations, is eroding.

The above definition suggests that causal mechanisms are theories. Nevertheless, I think Beach and Pedersen (2013; 2016) are actually (or at least they should be given their other views) committed to an ontic view of causal mechanisms, according to which a causal mechanism is “a system of interlocking parts that transmits causal forces from X to Y” (Beach & Pedersen, 2013, p. 26) rather than *a theory about such a system*. Otherwise, it is hard to see how causal mechanisms can transmit anything or link causes to their effects. The ontic view, then, grants that we need middle-range theories to *discover* and *represent* causal mechanisms but refuses to equate causal mechanisms with our theories. The distinction between causal mechanisms and our theoretical representations of them is important for analyzing how middle-range theories about causal mechanisms are built through process-tracing since it enables us to clearly separate our assumptions about causal

<sup>3</sup> Though Beach and Pedersen's (2013; 2016) views on causation may not be entirely unproblematic, I do not consider them here.

<sup>4</sup> In Fig. 1, Beach and Pedersen claim that the outcome of this mechanism is simply “electoral fraud”. This is misleading since the outcome of interest is rather “an institutionalized system of electoral manipulation and control” (Ziblatt, 2009, p. 15).



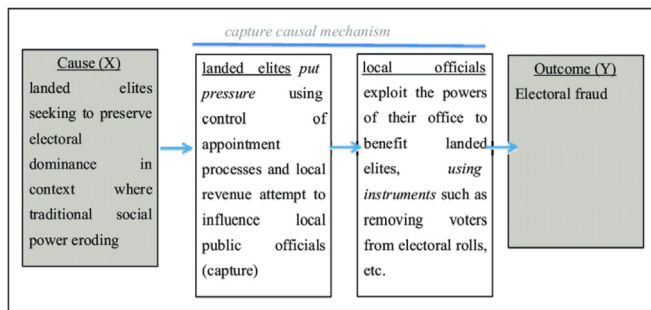


Fig. 1. Capture causal mechanism (Beach & Pedersen, 2016, p. 83).

mechanisms and our assumptions about middle-range theories.

Assuming the ontic account of causal mechanisms, Beach and Pedersen's (2013, Chapter 3) conception of causal mechanisms can be reconstructed in terms of three basic assumptions:

- 1) A causal mechanism links a cause X to its outcome Y.
- 2) A causal mechanism consists of entities engaged in activities that are organized into a singular sequence of a delimited number of temporal parts between X and Y.
- 3) A causal mechanism transmits causal forces.

In what follows, I take a closer look at these assumptions and identify some problems in them.

The first two assumptions seem too restricted for the purposes of social research since they fit only the mechanisms of social processes with clear temporal boundaries and distinct temporal parts that together form a singular sequence. This restriction is problematic because there are many ongoing social processes that do not have clearly identifiable temporal boundaries nor non-parallel sequences of clearly identifiable temporal parts. Markets, fashion and various social processes that produce different types of segregations and inequalities among individuals, social groups or residential areas are well-known cases in point. Though we may theorize the causal mechanisms that drive the ongoing social processes of these kinds by studying the temporal slices of their instances that we may construe as our cases, it is important to realize that these processes as such do not have clearly identifiable starting points nor end points. Furthermore, since the ongoing social processes of these kinds usually involve spatially distributed and temporally parallel social actions of large numbers of different types of social actors whose complex interactions produce unintended and unanticipated consequences (see Hedström, 2005; Hedström & Bearman 2009), it does not seem appropriate to represent their causal mechanisms in terms of singular sequences of distinct temporal parts in which each part is considered a specific type of entity engaged in one or more activities.

Although Beach and Pedersen (2013, 29) admit that "the transmission of causal forces can be nonlinear through the mechanism" and briefly discuss threshold mechanisms (Beach and Pedersen, 2013, 55–56), they do not provide conceptual tools for representing causal mechanisms that include nonlinear interactions. Their template for describing causal mechanisms (exemplified in Fig. 1) is also most suitable for causal mechanisms that consist of linear sequences of temporal parts. These are considerable restrictions since many of the most interesting causal mechanisms studied in the social sciences include nonlinear interactions, such as self-reinforcing feedback loops. The well-known mechanisms of accumulation of advantage, of bandwagon effect, of residential segregation and of path-dependent increasing returns are cases in point. Hence, it is problematic to assume that in successful theory-building process-tracing analysts are able to construct case-based empirical narratives whose parts manifest the temporal parts of underlying causal mechanisms since this view seem to presuppose that all causal mechanisms consist of the linear sequences of temporally

distinct parts.

An additional problem regarding assumption (2) can be identified by considering Beach and Pedersen's claim that causal mechanisms can be understood "in terms of a system that produces an outcome through the interaction of a series of parts of the mechanisms" where each part "is composed of entities that engage in activities" (Beach and Pedersen, 2013, 39). They differentiate these "series of parts of the mechanisms" from the sequences that consist of "empirical events that are temporally and spatially located between the occurrence of X and the outcome of Y" (Beach and Pedersen, 2013, 33). The idea here seems to be that the term "empirical event" refers to observable occurrences (or token events) while the term "causal mechanism" refers to the abstract properties of many causally homogenous processes. These abstract properties in turn are assumed to "underlie" the sequences of observable occurrences. Be this as it may, my worry is that Beach and Pedersen's assumption (2) creates confusion since — as the cited claim illustrates — it implies that causal mechanisms have two different kinds of parts: component entities that are able to engage in various activities in virtue of their dispositional properties (hereafter: part<sub>1</sub>) and temporal slices of entities that are engaged in a specific type of activity for a specific period of time (hereafter: part<sub>2</sub>).

Though Beach and Pedersen nowhere clearly separate them, there are significant differences between these two kinds of mechanism parts: A part<sub>1</sub> (e.g. a political party with specific interests) may be a component of many causal mechanisms whereas a part<sub>2</sub> (e.g. a political party whose leaders negotiate with those of the other party in order to form a coalition government) may not be uncoupled from a particular (type of) causal mechanism (e.g. coalition formation). Parts<sub>1</sub> may also be said to interact with each other while parts<sub>2</sub> may precede or follow one another rather than interact with each other. Furthermore, the ongoing causal mechanisms, which do not have a clearly identifiable sequential structure (i.e. parts<sub>2</sub>), are still composed of the entities (i.e. parts<sub>1</sub>) that interact with each other.

Beach and Pedersen's (e.g. 2013, 30–31) conflation of parts<sub>1</sub> with parts<sub>2</sub> affects how they describe their exemplary causal mechanisms and advice to other researchers on how to represent causal mechanisms. For example, in their description of the capture causal mechanism in Fig. 1, they depict those activities that landed elites and local officials engage in, but they do not describe the beliefs and desires of local officials that would explain why they decided to exploit the powers of their office to benefit landed elites. It seems to me that the specification of the types of desires and beliefs of local officials — that enable us to understand why they acted as they did — would have provided a deeper explanation of the institutionalization of electoral frauds. This omission is not surprising since Beach and Pedersen's (2013, 40; also 2016, 80) template for (representing) causal mechanisms includes only activities and entities but not properties of entities. Hence, in order avoid confusions and unnecessary biases, I suggest that parts<sub>2</sub> of causal mechanisms can be better termed as their *stages* and that the term 'mechanism part' should only be used to refer to parts<sub>1</sub>. I will henceforth employ this distinction.

Furthermore, although it is plausible to assume that causal mechanisms studied in the social sciences consist of entities and activities that are temporally and spatially organized to produce a specific type of outcome, it seems misleading to claim that the activities of social entities "transmit causal forces through the mechanism" (e.g. Beach & Pedersen, 2013, p. 39; 29 cf. Bennett & Checkel, 2015, p. 12). Perhaps the most charitable interpretation is to regard this notion as a metaphor that highlights the productive continuity of causal mechanisms. Nevertheless, the relevant type of productive continuity of causal mechanisms in this context is not best described in terms of transmission of causal forces, since there is a variety of different types of items that may be transmitted in social activities and interactions, such as ideas, skills, diseases, property rights, obligations or money. It is simply misleading to conceptualize them all as "causal force" since this metaphorical expression has its origin in the notion of physical force that invites us to

think mechanical machines which provide an inadequate model of social interactions. Moreover, there seem to be causal relations that do not involve the transmission of anything. For example, the structure of a social network may well be said to be among the causes that can be cited in explanations of the observed differences of the diffusion rate of an innovation in different populations even though the network structure as such does not transmit anything.

## 6. An elaborated account of causal mechanisms

I suggest that Peter Hedström's (2005, 25) concise definition provides us with a good point of departure for developing an alternative account of causal mechanisms:

mechanisms can be said to consist of entities (with their properties) and the activities that these entities engage in, either by themselves or in concert with other entities. These activities bring about change, and the type of change brought about depends upon the properties of the entities and the way in which they are linked to one another.

This ontic definition draws on Peter Machamer's and his collaborators influential article on causal mechanisms (i.e. Machamer, Lindley, & Craver, 2000). It implies that causal mechanisms are neither intervening variables nor theories. Accordingly, the entities that are the component parts of a causal mechanism are assumed to have suitable causal properties that enable them to engage in their activities.

The above definition does not require that all causal mechanisms should be understood in terms of linear and non-parallel sequences of stages that link causes to their outcomes. Nor does it demand that the component entities in causal mechanisms studied in the social sciences are always human individuals even though this view is advocated by Hedström (2005). Although causal mechanisms that consist of interacting individuals (with desires and beliefs) and their interlinked activities are important for explanatory social research, I do not see any problem in using the concept of entity to refer to suitably organized groups, or collective agents, that may function as component parts of some causal mechanisms studied in the social sciences (Kaidesoja, 2013). Furthermore, the above definition is also compatible with the view that causal mechanisms are more or less context-dependent.

In contrast to the notion of transmission of causal forces through the stages of causal mechanisms, it is enough to require that the activities and interactions of entities consist of *productive links* through which the mechanism generates the phenomenon or connects the cause X to the outcome Y. Since the core entities in causal mechanisms studied in the social sciences are culturally embedded social actors, the productive links often consist of the intentional actions and (often technologically mediated) sociocultural interactions of these actors. For these reasons, there may also be time lags between the stages of mechanisms that follow one another (e.g. a causal link between the consecutive stages may consist of written communication), meaning that these stages do not always manifest themselves in the form of sequences of observable token events in the studied cases.

It is also important to separate concrete social processes (shortly: social processes) from causal mechanisms that drive or underlie these processes. A social process consists of *tokens* of entities, activities, interactions and outcomes in a specific context, while its causal mechanism is usually theoretically represented in terms of *types* of entities, activities, interactions and outcomes in a way that abstracts from the contingent features of the social processes and their contexts. Hence, the concepts that refer to types of entities and activities allow us to theorize the crucial properties, activities and interactions of entities in a causal mechanism through which it is able to produce its outcomes in different cases of the class of causally homogenous social processes that instantiate it. In addition, some social mechanisms may be clearly bounded and can be represented in terms of the linear sequences of stages while other social mechanisms include feedback loops and/or

other non-linear interactions.

Beach and Pedersen's (2013; 2016) understanding of causal mechanisms seems to reflect their interest in contributing to the development of process-tracing methods that are often used to track sequences of events. This is not surprising since process-tracing appears to be best suitable for studying causal mechanisms that have clearly identifiable temporal boundaries and non-parallel sequences of stages that linearly follow one another. Nevertheless, Beach and Pedersen have not provided good reasons why we should build these assumptions into our template for representing causal mechanisms and our account of theory-building process-tracing. Here I have offered some reasons why we should not do this.

## 7. Middle-range theories and theory-building process-tracing

Now that I have developed an elaborated account of causal mechanisms, it is time to reconsider middle-range theories from this perspective. As noted above, Merton's (1968) original views contain a tension between his single-function and static definition of the concept of middle-range theory and his developmental approach to middle-range theorizing that emphasizes different epistemic functions of these theories. I have elsewhere argued that this tension can be resolved by decomposing a middle-range theory into three evolving components that perform different epistemic functions in social research:

- 1) A *conceptual framework about social phenomena* is a set of interrelated concepts that is developed in close connection with empirical analysis.
- 2) A *mechanism schema* is an abstract description of a causal mechanism in terms of interacting entities and activities.
- 3) A *cluster of mechanism-based explanations* consist of all explanations that are based on a mechanism schema(s) of the theory (Kaidesoja, 2018).

The idea is that all three components are involved when social scientists develop new middle-range theories about causal mechanisms. In this conception, middle-range theories can be understood and classified in two different ways. First, we may concentrate on a highly abstract mechanism schema that is applied, often in combination with other abstract mechanism schemas, in mechanism-based explanations of many different social phenomena in different domains of research. Second, we may focus on a particular social phenomenon, described in terms of a domain-specific conceptual framework, and one or more mechanism schemas that are applied in its mechanism-based explanations. This distinction reflects the previous division between how middle-range theories are understood among analytical sociologists, who use formal methods and agent-based modeling combined with large-N data, and among political scientists, who employ process-tracing and comparative methods combined with single-N or small-N data. My focus here is on the second view of middle-range theories.

Before revisiting Beach and Pedersen's account of theory-building process-tracing, let me illustrate this view by discussing the so-called democratic peace theory. This theory aims to establish and explain the phenomenon that democratic states are less likely to go to war against each other than other kinds of states. While many political scientists maintain that this empirical generalization is one of the strongest in the social sciences, others have challenged the existence or robustness of the phenomenon of democratic peace in various ways (e.g. Brown et al., 1996). My goal is not to resolve this dispute here, nor to argue for the theory of democratic peace. I rather aim to show how this theory can be understood as a middle-range theory with three components that perform different epistemic functions.

The conceptual framework of this theory includes not only the classification of different types of political regimes that enables researchers to specify the key attributes of democratic regimes that differentiate them from the other types of regimes, such as autocracies. It

also contains descriptions of the key attributes of peaceful relations between states and how they differ from interstate war. This framework has allowed the advocates of this theory to identify and specify the phenomenon of democratic peace. For example, some of them have emphasized that the concept of democratic peace only applies to those liberal democratic states whose political elites perceive each other as democratic and that this phenomenon is entirely compatible with the fact that liberal democracies relatively often go to war against the states that their political elites perceive as non-democratic (e.g. Owen, 1994). The framework has also been refined over time since there have been long-lasting debates among political scientists as to how these inter-related concepts should be understood. In addition, the phenomena of democracy and war have undergone historical transformations that have also been addressed in disputes about conceptualization of democratic peace (e.g. Brown et al., 1996).

The promoters of the democratic peace theory have not only sought to establish the phenomenon of democratic peace by conceptualizing it and providing evidence for its existence. They have also aimed to identify and describe causes and causal mechanisms that explain this phenomenon. For example, political scientist John Owen (1994), synthesizing the normative and the structural theories of democratic peace, has proposed a causal mechanism through which liberal ideas (with specific type of content) give rise to recurrent social processes involving specific groups of liberals (with liberal beliefs) and the domestic democratic institutions (that have been designed on the basis of liberal ideas) that both work in parallel to constraint the activities of statesmen and governments, such that the latter refrain from declaring war with the other states that are perceived as democratic by the liberal political elite of the country. I suggest that Owen's theorizing of what he calls "the liberal mechanism" (p. 96) can be understood to form a mechanism schema. Since this mechanism schema includes a hypothetical and abstract qualitative description of the institutionalized activities and interactions of specific types of social actors that are triggered in conditions of international crises, it can be understood as a mechanism schema rather than as an empirical generalization or universal social law. One of the epistemic functions of the liberal mechanism schema is to allow the analyst to identify the relevant actors (with liberal beliefs and perceptions of other states) and the relevant democratic institutions (e.g. free speech and regular competitive elections) in the cases where this mechanism is expected to operate.

Owen illustrates the liberal mechanism schema by applying it to four cases of "war-threatening crises involving the United States from the 1790s through World War I" (Owen, 1994, 89). These case studies may be included in the cluster of mechanism-based explanations that are based on the liberal mechanism schema. In these studies, Owen identifies particular individuals and social groups (with specific beliefs and perceptions) in each case that fill in the attributes of the abstractly described types of entities and the institutionalized activities and interactions they engage in. He also presents case-based mechanistic evidence that supports the propositions that he derived from his abstract representation of the liberal mechanism. The empirical application of the mechanism schema to a case, however, does not by itself refute the possibility that also other causes and mechanisms may operate in the studied case. Owen seems to admit this since he does not deny that, for example, the cost-benefit calculations and the power balancing mechanism emphasized by political realists may be relevant to explanations of both the cases where war was avoided between liberal democracies and the cases where liberal democracies decided to fight (or not to fight) against illiberal and non-democratic states (Owen, 1994, 95–96; 121). Nevertheless, his theory implies an empirically testable claim that these causes and mechanisms do not override the operations of the liberal mechanism for democratic peace in cases of international crises between such democratic states that perceive each other as liberal democracies. Since not all political scientists agree with Owen's explanations, some of the current debates revolving around the democratic peace theory concern the relative merits of different

mechanism-based explanations of particular cases.

With this example in mind, let us move on to consider how Beach and Pedersen's (2013; 2016) descriptions of the three steps in building middle-range theories through process-tracing can be elaborated by employing the previous accounts of causal mechanisms and middle-range theories.

In the first step, as presented above, the analyst defines the concepts of cause X and outcome Y, or the concept of outcome Y, and builds an empirical narrative about the sequence of observable events between the instances of X and Y in the selected case. Though Beach and Pedersen (2013; 2016) provide guidelines for conceptualization and operationalization of X and Y that apply to all variants of process-tracing, the first step of theory-building process-tracing can be enhanced (at least) in two ways by using the notion of a conceptual framework about social phenomena.

Firstly, we may address the procedures through which the analyst invents new concepts to identify new types of social phenomena. It may be possible to add a new concept to a domain-specific conceptual framework by specifying its key attributes and relations to closely related concepts without making any other modifications to the framework. Nevertheless, in situations where the analyst has identified a puzzling outcome that is inconsistent with the expectations of the well-established theories, she may have to develop such a new concept for the outcome that calls into question one or more of the relevant conceptual frameworks in the field. For example, the conceptualization of democratic peace in modern political science not only enabled political scientists to identify a relatively novel social phenomenon and to provide evidence for its existence. It also required the questioning of "the realist conceptual framework" in the field of international relations that conceptualizes international relations exclusively in terms of interstate power relations in the anarchic international system where states with conflicting self-interests are considered rational actors who aim to maximize their self-interests.

Secondly, assuming with Beach and Pedersen (e.g. 2016, 26) that we are interested in conceptualizing qualitative differences between social phenomena rather than building variables, the notion of conceptual framework may prove useful in avoiding such conceptual stretching in which the meaning of a concept is understood so loosely that it overlaps with the other, closely related concepts. For example, the concept of representative democracy may be stretched to encompass political regimes with non-free and non-competitive elections unless it is recognized that elections of this kind are attributes of some autocracies, whose leaders try to give an impression that their regimes are democracies, rather than attributes of representative democracies. Though I do not argue for these points here, it is also plausible to suggest that an integrated conceptual framework about social phenomena is needed to provide definitions of family resemblance concepts and to develop conceptual typologies that can be used in specifying theoretically interesting subtypes of social phenomena (cf. Beach and Pedersen, 2016, 104–105; 344–345).

The second step in Beach and Pedersen's account of theory-building process-tracing consists of the inference that the temporal sequence of events described in the empirical narrative about the case manifests the stages of a causal mechanism that might be present in the case. This step also contains the conceptualization of the hypothesized causal mechanism by specifying all of its stages that are needed to link X to Y in the studied case, using the terms that refer to entities engaged in the activities. In the following, I aim to specify this step by re-interpreting the hypothesized causal mechanism as a new mechanism schema (cf. Darden, 2002, S356) and by replacing Beach and Pedersen's notion of causal mechanisms with the one presented above. These moves allow us to reconsider the relation between the case-based empirical narratives and the theoretical representations of causal mechanisms in theory-building.

It should be stressed that mechanism schemas are not empirical generalizations but theoretical constructs that specify the types of

actors (with their properties), their activities and organized interactions that are capable of producing a specific type of outcome in suitable contexts (cf. Hedström & Ylikoski, 2010, pp. 52–53; 61–62). Unlike the sequences of empirically identifiable events, these items typically cannot be simply abstracted from empirical materials about a particular instance of a social process since, as indicated above, the sequences of events may not directly manifest causal mechanisms operating in the studied case — although in some cases they might do that, insofar as we are studying a causal mechanism that has a sequential, non-parallel and linear structure. Furthermore, it seems reasonable to expect that it is always possible to build multiple empirical narratives about the possible pathways between causes and their outcomes in the studied case due to the fact that all narratives are highly selective accounts of concrete processes. These considerations imply that the role of empirical narratives in theory-building process-tracing is more restricted than Beach and Pedersen (e.g. 2013, 17) tend to assume. Hence, in addition to the case-based empirical narratives, I suggest that the building of new mechanism schemas is significantly facilitated and constrained by the earlier empirical studies that are considered successful as well as by the available theoretical resources of social scientists, including their conceptual frameworks, generally accepted mechanism schemas and general theoretical orientations.

The distinction between abstract mechanism schemas and causal mechanisms that drive concrete social processes also helps us to address the issues concerning the proper level of abstraction in our conceptualization of causal mechanisms. The importance of these issues is noticed by Beach and Pedersen (2013; 2016) but the lack of a clear distinction between middle-range theories and causal mechanisms prevents them from treating these issues comprehensively. I tentatively suggest that a mechanism schema used in case studies should include concepts that define the types of actors, including their causally relevant properties, and their activities that can be used in identifying particular groups of interacting social actors and their activities in particular instances of the social process of interest. Otherwise, the mechanism schema would be too indeterminate for the purposes of explaining the case in terms of the causal mechanism that operated in the case. Hence, the entities in mechanism schemas cannot be conceptualized, for example, in terms of population-level variables (e.g. the average age of individuals) nor in terms of abstract categories of social institutions or structures (e.g. democracy, capitalism or feudalism) since, without further qualification, these kinds of terms do not allow us to identify any concrete social actors or their activities. Owen's (1994) conceptualization of the liberal mechanism can be used to illustrate these suggestions since it provides semi-abstract conceptual tools to identify specific groups of social actors with their properties (e.g. the notions of liberals with specific liberal ideas and liberal political elites with perceptions about the political regimes of other countries) and specific democratic institutions based on liberal ideas (e.g. the institutions of free speech and regular competitive elections) that together constrain the activities of statesmen and governments in liberal democracies during international crises.

Furthermore, as many social scientists have indicated, analogical reasoning is one way to utilize earlier theories and case studies to develop new theories (e.g. Abbott, 2004; Becker, 2014; Swedberg, 2014; Vaughan, 2014). For example, sociologist Howard Becker (2014, 40) writes that:

One of the simplest ways to use cases to explain other, more puzzling cases is to reason from analogy, treating the one case you know well as a model that will explain what you don't understand about another one, or at least point you in the right direction, and put you on the road to discovering a general mechanism common to both.

In this way, comparisons between cases may give rise to new mechanism-based explanations of cases and new mechanism schemas. In the context of theory-building process-tracing, the analyst may also utilize the available mechanism schemas to develop a new mechanism

schema by means of analogical reasoning. Furthermore, analogical reasoning can be used to identify structural similarities in the accepted mechanism schemas in order to develop more abstract classifications and typologies of mechanism schemas in the research domain.

The third step in theory-building process-tracing involves procedures whereby the analyst infers from case-based evidence that the hypothesized causal mechanism is present in the studied case and provides a mechanism-based explanation of the case. Again, I suggest that this step should be re-interpreted using the notions of causal mechanism and mechanism schema outlined above. It is important to realize that potentially generalizable mechanism schemas are more abstract than mechanism-based explanations of particular cases that are proposed by applying a particular mechanism schema. The case studies that apply the same mechanism schema may be said to form a cluster since the same causal mechanism may unfold somewhat differently in different cases because of the contextual differences. For example, the specific contents of liberal ideas and the specific features of democratic institutions as well as the specific activities of statesmen and governments may be slightly different in different cases where the liberal mechanism schema can potentially be applied to explain how war was avoided between two democratic states during an international crisis (Owen, 1994). Nevertheless, since the mechanism schemas that are built and applied in the context of case studies are usually less abstract, idealized and general than those developed by using formal methods, it can be expected that situations where the same mechanism schema can be applied to a particular case in mutually incompatible ways are relatively rare.

This is perhaps the most contested step in theory-building process-tracing since it can be claimed that it is always possible that there are two or more mutually incompatible mechanism schemas that are compatible with all case-based facts. Although this may be true in principle, it does not necessarily follow that it forms an insurmountable obstacle to theory-building process-tracing in practice (cf. Beach & Pedersen, 2013, pp. 89–90). There are two reasons for this: first, as already repeatedly indicated, mechanism schemas developed in case studies are usually not only less abstract and idealized but also more detailed than those developed by using formal methods or agent-based modeling. For this reason, it is not an easy task to come up with many plausible mechanism schemas that would each provide alternative explanations for the outcome in the studied case and would all be compatible with the relevant mechanistic evidence. Second, in contrast to large-N studies, single-case research designs usually allow the analyst to acquire new independent mechanistic evidence that she can use to discriminate between competing accounts of the component parts and stages of a causal mechanism (or between competing mechanism schemas). When iterated, this procedure may well result in situations where there are no plausible competing explanations to the one based on a particular mechanism schema although there may be other explanations that complement it. This is what Beach and Pedersen (2013, 18; 89–90) expect to occur in successful theory-building process-tracing. Though we may now have an empirically supported mechanism-based explanation of the case under study, other studies are needed to determine how general the mechanism schema turns out to be and to specify its scope conditions. This view is in line with Owen's (1994, 102–105) study since he admits that his account of the liberal mechanism for democratic peace requires that further case studies are conducted to empirically test his theory.

## 8. Conclusion

Beach and Pedersen's (2013; 2016) account of theory-building process-tracing is an attempt to specify how new middle-range theories about causal mechanisms may be developed through case studies. In this paper, I not only identified some ambiguities and problems in their notions of causal mechanisms and middle-range theories. I also showed how they can be resolved by clarifying and elaborating these two



concepts. This allowed me to propose some revisions and amendments to their account of theory-building process-tracing. I did not offer a full analysis nor a defense of Beach and Pedersen's assumptions about causation and within-case causal inferences that are, at least to some extent, presupposed in both versions of theory-building process-tracing discussed above. Since these assumptions are controversial among social scientists and philosophers of the social sciences, it can be expected that Beach and Pedersen's work will be further debated.

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